

BOTANICAL NOTES ON THE VASCULAR FLORA OF CHIANG MAI PROVINCE, THAILAND: 2⁺

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A B S T R A C T

Sixteen species of flowering plants are discussed including one new combination, five new records for Thailand, and three emended descriptions.

ANNONACEAE

1. *Milium cuneata* Craib, fruits described

CRAIB (1912) did not describe the fruits of this species which was based on flowering material collected by Kerr (no. 1837) on Doi Sutep in evergreen forest at 900 m. Now that I have collected both flowering (Maxwell 89-613, 11 May 1989, at 1350 m) and fruiting (Maxwell 90-1098, 4 October 1990, at 1400 m) material of this species in Doi Sutep-Pui National Park, in primary evergreen forest in the Chang Kian Village area on the east side of Doi Pui, the fruits can be described with certainty.

Infructescences pendent, axes glabrous, light green, total length 22-43 mm; bracts near the base, triangular, ciliolate, c. 1.5 x 0.75 mm. Receptacle sparsely setulose. Carpel stalks 4-9, glabrous, light green, 8-9 mm long. Ripe carpels (fruits) globose to ellipsoid; exocarp thin, glabrous, light green, smooth, drying dark green and with a roughened texture, 6-8 x 5-7 mm. Seed solitary, of similar size and shape as the ripe carpels, externally corrugate, with a groove from base to tip on two sides; testa tan; endosperm deeply ruminate.

I have seen several individuals of this species which have all been treelets 1-1.5 m tall, basal diameter 2-3 cm; and with thin, smooth, brown bark. CRAIB (1912) indicates that the species grows as a shrub to 4.5 cm (sic) tall which is improbable. Examination of Kerr's notes on the type material may resolve this obvious error.

GUTTIFERAE

2. *Garcinia mckeaniana* Craib, fruits described

The syntypes of this species (Kerr 3504 and 3470) are from Doi Sutep and were collected in primary evergreen forest from 1200-1550 m elevation. As the specimens were both staminate, the female flowers and fruits have yet to be described (CRAIB, 1924;

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GAGNEPAIN, 1943). As I have also collected staminate material of this species on Doi Sutep (Maxwell 87-1648, 26 December 1987) at 1250 m, I can be certain of the identification of the fruiting material I recently collected there at 1300 m, in primary evergreen forest (Maxwell 91-361, 19 April 1991).

Fruits ellipsoid, glabrous, at first light green and later green with darker green lines from tip to base, hard and with yellow sap; ripening light yellowish inside and outside, soft, to 5.5 x 4.5 cm. Aril light yellow, slightly sour. Seeds up to 8 per fruit, but generally fewer; oblong, flattened, to 25 x 7 mm.

The individual trees of this species that I have seen have been from 17-20 m tall, dbh 23-40 cm, have monopodial branching; and bark which is thin, smooth to slightly roughened, grey to greyish-brownish and with light yellow to yellow sap. Fruiting sepals 4, concave, broadly elliptic, broadly rounded at the tip, glabrous, green, 5 x 4 mm, reflexed when dry. The staminate inflorescence axes are green, sepals green and maturing cream-greenish; petals cream, anthers light brown, filaments and pistillode cream-whitish; blades dark green above, green underneath. I have seen this species in Doi Sutep-Pui National Park in shaded primary evergreen forest from 1050-1375 m. It is also known from Nan Province in Thailand; Tonkin Province, Vietnam, and Laos.

It is named in honour of James W. McKean (1860-1949), American physician who established the McKean Rehabilitation Center in Chiang Mai in 1908.

ACERACEAE

3. *Acer garrettii* Craib, fruits described (Figure 1)

Originally described in 1920 from immature staminate flowering material collected in 1910 (Garrett 77) from Doi Intanon at 2070 m, this species is also known from Doi Sutep (Hosseus 222) (CRAIB, 1920). I found fruiting material of this species in the middle of Chang Kian Valley on the east side of Doi Sutep-Pui National Park at 1000 m on 7 March 1991 in primary evergreen forest (Maxwell 91-229). As CRAIB (1920) and GAGNEPAIN (1950) lacked fruiting material in their descriptions the fruits and other notes concerning this species are presented here.

This is an evergreen tree which was noted by CRAIB (1920) with Garrett's field notes, to have a girth at 1.3 m from the ground of 61 cm (= dbh c. 19 cm) at 2070 m elevation. The tree that I found was a canopy species at least 20 m tall with a dbh of 1 m, with the trunk fluted in the lower 3 m and thin, flaking, brown bark.

Infructescences erect, glabrous, 5-9 cm long. Samaras 2, divergent with a "U"-shaped sinus at c. 45°; the samaras individually asymmetrically oblong, 22-25 mm long, the widest part of the wing being 6-7 mm wide. Fertile part rhomboid-subglobose, 5-6 x 4 mm; wings membranous, prominently nerved, lower margin thickened and straight, upper margin somewhat sinuate. Carpels villous inside. I have not seen seeds in the material that I collected since they have not developed.

Acer garrettii is named in honour of the collector of the type material, Mr. Henry B.G. Garrett (1871-1959) a British forester who worked for the Siamese Forest Department in Chiangmai where he collected many fine plant specimens. This species is readily distinguished by its lanceolate to narrowly oblong, glabrous, entire blades which are acute

to slightly decurrent at the base and the 45° angle spread of the samaras. *Acer oblongum* Wall. ex DC. is the only other known species in this genus with unlobed leaf blades in Thailand. It has rounded blade bases, terminal inflorescences, and samaras which spread at right angles (90°), i.e. the samaras are parallel. GAGNEPAIN (1950) indicates that *A. decandrum* Merr., From Vietnam and Hainan, is closely related to *A. garrettii* and this appears to be a correct observation. If, however, the two species are the same then *A. garrettii* has priority since *A. decandrum* was described in 1932. I have not seen any references or material of *A. hilippense* Merr. which Craib notes in the protologue of *A. garrettii*.

LEGUMINOSAE (Papilionoideae)

4. *Crotalaria zanzibarica* Bth. NEW RECORD

Originally from tropical east Africa and naturalized in Taiwan, Vietnam, and Java; this species was first described by Bentham in 1843 (THUAN, 1987; Backer & Bakhuizen v.d. Brink, 1963). I found flowering and fruiting material of this species (Maxwell 89-1343) on the west side of Doi Pui in Doi Sutep-Pui National Park at 1175 m on 1 November 1989. The plants were growing in an open, agricultural area in mixed evergreen hardwood-pine forest. It is an erect, branching herb up to c. 50 cm tall with palmately trifoliolate leaves, the standard and wing petals yellow with dark red-maroon venation, and cylindric and later spirally twisted (dehisced) pods. One of the most distinguishing features of this species is the stipitate ovary which is densely villous on the dorsal margin and glabrous otherwise.

5. *Macrotyloma uniflorum* (Lmk.) Verdc. var. *uniflorum* NEW RECORD

First described in 1786 by Lamarck from specimens collected in India, this species and variety is now known from tropical Africa and lowland areas of the Himalayas (Verdcourt, 1982). It is the commonest and most widespread of the 4 varieties known for the species. I collected flowers and slightly immature pods of var. *uniflorum* from the east side of Doi Pui in Doi Sutep-Pui National Park at 1300 m elevation on 8 December 1989 in an open, overgrown agricultural area in primary evergreen forest (Maxwell 89-1529).

It is an inconspicuous *Vigna*- or *Dolichos*-like vine which is trifoliolate, with basically yellow petals, and generically distinct stigma characteristics. I would like to thank Dr. R. Geesink at the Rijksherbarium, Leiden, Netherlands for assistance in the identification of this plant plus sending me relevant parts of Dr. Verdcourt's paper. The actual species & variety names, which imply solitary flowers, is a misnomer since, at least with my material, the inflorescences have several flowers each.

6. *Pueraria imbricata* Maes., fruits described figure 2)

This species was described in 1985 from flowering specimens collected in southern Laos and northern Thailand. I have found it several times, mostly in open thickets and usually near streams in evergreen to deciduous forests on both granite and limestone bedrocks, from 525-1150 m, during September to early November. I found fruiting ma-

terial at Ban Bah Bae, Mae Dtang District, Chiang Mai Province at 825 m in an open, wet thicket in mixed evergreen/deciduous forest on 20 November 1990 (Maxwell 90-1284).

Infructescences erect, axes puberulous and glabrescent, greenish and turning brown, up to 51 cm long. Pedicels reflexed, c.3 mm long. Pods linear, flat, mostly parallel to the raceme axis, 4.5-7.5 cm long, 6-8 mm wide, green and ripening brown, terminated with the "J"-shaped style; densely covered with brown, spreading, bulbous-based setae 2-3 mm long. Pod segments 2-9, with shallow constrictions between the seeds which were, unfortunately, immature.

The largest leaflets that I have found are 29 x 15 cm for the terminal segment and 19 x 12.6 cm for the lateral ones. The infructescence, especially the reflexed pods, seem to be similar to those of *Pueraria alopecuroides* Craib which differs in having more densely clustered flowers and setose inflorescence/infructescence axes. Furthermore, *P. alopecuroides*, at least in Thailand, flowers from late January to perhaps early March (Maxwell 90-214, 15 February 1990 and 91-99, 29 January 1991) and fruits in April (Maesen, 1985).

ROSACEAE

7. *Prunus zippeliana* Miq. var. *zippeliana* NEW RECORD (Figure 3)

The type of this species and variety was described by Miquel in 1855 from material collected by Zippel in Java (VIDAL, 1968). It is also known from North Vietnam, Formosa, Japan, and China. I was fortunate to find flowering material of this taxon near Bah Bae Village, Mae Dtang District, Chiang Mai Province along a small stream in mixed evergreen/deciduous forest, on granite bedrock at 850 m on 6 November 1990 (Maxwell 90-1220). Final flowers and immature fruits were found in the same area in Mae Dtang District, also along a stream, at Ban Mae Mam at 1075 m on 2 December 1990 (Maxwell 90-1310). I also saw immature fruits near Mae Sae Village which is in the same general area as the other two places at 950 m on 13 January 1991.

This taxon is a tree, found growing 10-14 m tall with a dbh of 9-17 cm, and with thin, smooth, grey bark. The leaf blades are characteristically sharply serrulate, petioles biglandular near the tip, and the inflorescences are racemose, up to 6.5 cm long, with flowers c. 5 mm long. It differs considerably from the other 8 known species and varieties of *Prunus* in Thailand (VIDAL, 1970). The other variety of this species, var. *crassistyla* (Card.) Vidal has thicker, entire blades and is known from southern China and North Vietnam.



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Figure 1. *Acer garrettii* Craib from Doi Sutep–Pui National Park. Photo : Somporn Hiranramdej.

Figure 2. *Pueraria imbricata* Maes. from Ban Bah Bae, Mae Dtang District, Chiang Mai.
Photo: Stewart Sawin.

CUCURBITACEAE

8. *Actinostemma tenerum* Griff. NEW RECORD

Actinostemma Griff., which has 3 or 4 species in east Asia, includes *A. tenerum* Griff. which is known from NE. India, China, Japan, and Vietnam (KERAUDREN-AYMONIN 1975). This species, described in 1837 by William Griffith from his own collection made in Assam, is also the type species of the genus.

I found staminate material of this species (Maxwell 89–1540, 16 December 1989) in a partly open area at the base of the limestone escarpment on the east side of Doi Chiang Dao at Pa Blawng Cave at 800 m in the mixed evergreen-deciduous forest in rugged limestone terrain. It is a slender vine with simple leaves and large, spreading, paniculate staminate inflorescences having many tiny staminate flowers with 5 free and similar stamens.



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Figure 3. *Prunus zippeliana* Miq. var. *zippeliana* from Ban Bah Bae, Mae Dtang District, Chiang Mai. Photo : Stewart Sawin.

Figure 4. *Psychotria winitii* Craib from Ban Bah Bae, Mae Dtang District, Chiang Mai. Photo : Stewart Sawin.

9. *Gynostemma angustipetala* Craib

CRAIB (1913b) described this species based on two staminate collections from Chiang Mai Province (Kerr 1332, Doi Sutep; and Kerr 1946, Ban Pong). It was said to differ from *G. integrifolia* Cogn. (= *Nealsomitra integrifolia* (Cogn.) Hutch.) by having longer and narrower petals. Later CRAIB (1931) made the recombination of *Alsomitra angustipetala* (Craib) Craib for this species since he considered the female flowers of this species to be generically different from *Gynnostemma*.

In recent years the Asiatic species of *Alsomitra* M.J.Roem. have been placed in *Nealsomitra* Hutch. (KERAUDREN-AYMOIN, 1975). *Nealsomitra* is readily distinguished from *Gynnostemma* by having 5 completely free stamens, while in the latter the 5 filaments are connate in a column and the anthers are coherent. While female flowers of both genera are, apparently, not generically distinct the tubular capsules of *Nealsomitra* differ considerably from the globose baccate fruits of *Gynnostemma*.

I have found staminate material of *G. angustipetala* (Maxwell 89–984) on Doi Sutep in deciduous forest with much bamboo at 425 m on 2 August 1989 and the filaments are, indeed, united, thus excluding it from *Neoalsomitra* as far as staminate flowers are concerned. I have not been able to find fruits of this species, thus the problem is not entirely settled. *Gymnostemma angustipetala*, vegetatively, because of its succulent, entire leaflets, looks more like *Neoalsomitra integrifolia* (Cogn.) Hutch. and *N. sarcophylla* (Wall.) Hutch. which I have collected the former on Doi Sutep and Doi Chiang Dao and the latter on Doi Sutep. All have been staminate collections. If the fruits of *G. angustipetala* are tubular capsules then it will have to be recombined under *Neoalsomitra*. As of now this species, because of its staminate flowers, belongs in *Gynostemma*.

RUBIACEAE

10. *Psychotria winitii* Craib, fruits described (Figure 4)

Winit Wanandom (1896–1955) of the Royal Forest Department, Bangkok, collected the type material of this species from Me (Mae) Yon, Me (Mae) Peng in Lampang Province at c. 150 m in evergreen forest (WINIT 1845). It was described by CRAIB in 1932 based on flowering material. I have found fruiting material of this species twice. The first time was on the NE. side of Doi Chiang Dao Wildlife Sanctuary at Sop Huay Pa Dahng-Huay Na Lao Forest Station at 550 m on 5 November 1989 along a small stream in mixed evergreen/deciduous forest on shale bedrock (Maxwell 89–1371). More specimens were found in a shaded, alluvial area along a small stream on granite bedrock in a mixed evergreen/deciduous forest at 825 m on 20 November 1990 at Ban Bah Bae, Mae Dtang District, Chiang Mai Province (Maxwell 90–1282). My most recent collection of this species (Maxwell 91–225, 3 March 1991) is from Mae Sawan Noi stream in Mae Haw Subdistrict, Mae Sariang District, Mae Hong Song Province; which had very ripe fruits and mature seeds. It was growing in a shaded place along a stream in the remnants of the primary evergreen forest on metamorphic sandstone bedrock at 1125 m elevation.

Infructescence terminal, corymbose, 3–4 cm long; axes densely dark brown furfuraceous. Drupes ellipsoid, terete, glabrous or with a few scattered hairs near the base, smooth; green and ripening orange–red to bright red, the most mature ones drying dull red; 9–12 × 6–8 mm (excluding the calyx lobes). Calyx lobes 4, persistent, erect, lanceolate to narrowly ovate, sparsely puberulous, c. 4 × 1–2 mm. Pyrenes 2, ellipsoid, dorsally convex and with 3 prominent ridges, ventrally concave and smooth; wrinkled when dry on both sides; 8–11 × 4–5 mm.

The main blade venation of all the specimens collected at Ban Bah Bae were depressed and white on the dorsal surface, thus being quite ornamental in this respect, while the other two collections lacked this feature. The lax secondary venation and prominent intramarginal nerves on the blades of this species are a reliable field characteristics.

CRAIB (1932) notes that this species is related to *Psychotria kratense* Craib, from SE. Thailand, which has smaller leaves than *P. winitii*, the former species also based on flowering material. CRAIB (1934) further indicates that *P. winitii* is similar to *P. lanceolaria* Ridl., from Selangor, Malaysia, which has 4–ridged pyrenes and also to *P. calocarpa* Kurz, from Burma, which has smooth pyrenes (RIDLEY, 1923; KURZ, 1877). The affinities of *P. winitii* would, therefore, seem to be elsewhere.

ASCLEPIADACEAE

11. *Dischidia obcordata* (N. E. Br.) Maxw. & R. Donk., *comb. nov.* and NEW RECORD

Micholitzia obcordata N.E. Br., Kew Bull. 1909, 358; in Hooker, Icon. Pl. 30 (1913) tab. 2980; Craib, Kew Bull. 1910, 201. Type: Micholitz s.n. (K, holo.).

Hoya manipurensis Deb, J. Ind. Bot. Soc. 34 (1955) 50, fig. 1 & 2; *syn. nov.* Type: Deb 1081 (CAL, holo.).

Hoya lantsangensis Y. Tsang & P.T. Li, Acta Phytotax. Sinica 12 (1974) 126; Icon. Corm. Sin. 3 (1974) 508, 866, tab. 4970; and Fl. Rep. Pop. Sin. 63 (1977) 190, p. 182; *syn. nov.* Type: Henry 13589 (NY, holo.; probably also in A, BM, K, MO, P, etc.)

Dischidia sp. Kerr, Fl. Siam. Enum. 3:1 (1951) 49.

The genus *Micholitzia* N.E. Brown was established in 1909 with *M. obcordata* N.E.Br. as the sole species (BROWN, 1909). It was correctly placed in the tribe Marsdeniae and was considered a distinct genus, related to *Marsdenia*, on account of the valvate corolla lobes and tuberculiform corona segments. Valvate corolla lobes are known in several other genera in this tribe, not in *Marsdenia*, so this feature is not exceptional; while the simple corona lobes as well as urceolate corollas, as in some species of *Marsdenia*, were thought to be unique (HOOKER, 1883; CONSTANTIN, 1912). Brown was obviously basing his generic limitations on Hooker's revision of the Asclepiadaceae for British India in which *Marsdenia*, aside from the imbricate corolla lobes, approximates some features of *Micholitzia*, while *Dischidia* has, at least in the key to genera, different coronas (HOOKER, 1883). It is obvious, therefore, that Brown had little familiarity with *Marsdenia* or *Dischidia* since the other characteristics of *Micholitzia* include many distinct features of what is clearly a distinct species of *Dischidia*.

Micholitzia obcordata N.E. Br. was described from living material collected by Micholitz somewhere in India or Burma and cultivated in Dublin. The follicles and seeds were not described. The species has been described twice under *Hoya*, viz. *H. manipurensis* Deb, from Manipur (NE. India) and *H. lantsangensis* Tsang & P.T. Li, from Yunnan; and well illustrated in their publications (DEB, 1955; TSIANG & LI, 1974) with the follicles and seeds having been described by the latter two authors. Deb's incursion of his species in *Hoya* is clearly wrong since *Hoya*, among other features, has rotate corollas and very different coronas. *Hoya lantsangensis* was split from *H. manipurensis* on account of slightly different leaf blade features, while the establishment of *Hoya* sect. *Antiostelma* was, in short, an erroneous and quite unnecessary taxonomic complication. Kerr came closest to the truth when he included a specimen of his (Kerr 6258) under *Dischidia* since it lacked flowers, but did have follicles and other features that were best included in this genus. He compared this specimen, from Me (Mae) Tun, Chiang Mai Province, to Henry 13589, which would later be designated as the type of *Hoya lantsangensis*.

I found flowering material of this species in Doi Sutep-Pui National Park at 1200 m on 13 September 1990 (Maxwell 90-995) and realized that it was the same as Kerr's unnamed species of *Dischidia*. With the assistance of Dr. J. F. Veldkamp of the Rijksherbarium, Leiden, Netherlands; my collaborator, Ruurd van Donkelaar, a private *Hoya* and *Dischidia* specialist in the Netherlands, and I studied this matter carefully and have decided to include *M. obcordata* in *Dischidia* with the two synonymous species of *Hoya*.

Dischidia obcordata (the leaf blades are obcordate) is an erect, succulent herbaceous or apparently somewhat shrubby epiphyte in which the roots grow in cracks on tree branches. The following field notes, supplementing the fine descriptions provided by the authors noted above, are based on my observations. Stems erect, green and turning greyish with age; pedicels green; calyx green with maroonish near the tips of the lobes; corolla tube light green, lobes dull yellowish; corona orange, anthers and stigma light orangish; blades dark green above, light green underneath. I found it growing on the branches of *Lithocarpus lindleyanus* (Wall.) A. Camus (Fagaceae) in open, primary evergreen, fire-prone forest on granite bedrock.

The species is now known from NE. India (Manipur & Assam), Yunnan, and northern Thailand and it is reasonable to assume that it should be found in Laos and Burma also.

According to David Goyder (personal communication) at Kew, there is living material of *Dischidia obcordata* there from Thailand. It was collected by G. Seidenfaden at Mae Sanam, near Bo Luang, c. 100 km south of Chiang Mai at 1000 m on 3 March 1971. It was initially cultivated at Copenhagen and later donated to Kew.

BORAGINACEAE

12. *Cordia mhaya* Kerr emend. Maxw.

KURZ (1877) notes that there is another species in Burma of what he assumed was *Cordia* from which only leaves, which are used by the Burmese in Pegu Yomah for cigar envelopes, are known. This species is called "mhaya" there and is now known as *C. mhaya* after Kerr described it in 1940. Kerr used Kurz's original material (Kurz (401) 2345, type) and Kerr 10300 (from Wangka, Kanchanaburi; paratype) in his description. *Cordia mhaya* is readily distinguished from related species by the lenticellate branchlets and especially the minute, whitish punctations on the upper surface of dry leaf blades. I have collected staminate flowering material (Maxwell 90–197) from the southern boundary of Doi Sutep–Pui National Park and fruits (Maxwell 90–870) from off the Mae Mah Lie–Pai Road, Bah Bae Subdistrict, Mae Dtang District, Chiang Mai Province and take this opportunity to amplify Kerr's description with my own notes.

Tree 8–9 m, dbh 14–17 cm. Bark thin, cracked and scaly, light brown. Branchlets brown, drying light brown with paler lenticels. Inflorescence axes and calyx green, staminate corolla and filaments white, anthers cream. Blades dull dark green and drying dark brown/blackish above, light to medium green and drying brown underneath. Infructescence axes greenish to tan. Fruiting calyx campanulate, glabrous, greenish, 5–6 mm long and covering the lower 1/3 of the fruit; margin shallowly and irregularly crenulate and cracked. Drupes ovoid, apiculate at the tip, glabrous, glossy yellow-green and turning green 12–13 x 16–19 mm. Internal pulp sticky and used as glue. Pyrenes 1–2, ellipsoid, tip apiculate, base rounded, with 2 prominent and 2 lesser angles, light brown., c.15 x 9 mm. Seeds up to 4 per pyrene.

This species is known locally as "noom mahn" and has also been recorded from Nan and Prae Provinces where it is called "baw mahn" (FLETCHER & KERR, 1951). I collected flowering material on 13 February 1990 at 425 m and fruits on 11 August 1990

at 925 m elevation. It seems to grow in secondary, often deciduous, growth and margins of mixed evergreen/deciduous forests.

ACANTHACEAE

13. *Strobilanthes viscidus* Imlay, fruits & seeds described

The type of this species (Kerr 2874) was collected on Doi Chiang Dao (1650–1700 m), while the paratype is from Doi Sutep at 1650 m (Kerr sn). The species is based on flowering material (IMLAY, 1939), which I have collected on Doi Sutep (Maxwell 90–1064, 27 September 1990) at 1300 m in primary evergreen forest and at Huay Nam Dahng, Doi Sahm Meun, Mae Dtang District, Chiang Mai Province (Maxwell 90–247, 27 February 1990) at 1175 m in a similar habitat. The most recent collection of this species that I have made is from Mae Sawan Noi in Mae Haw Subdistrict, Mae Sariang District, Mae Hong Song Province at 1125 m (Maxwell 9–212, 2 March 1991). This is a flowering collection found in conditions identical to those of the other places where I have found this species except that the bedrock is metamorphic sandstone, not granite.

I have found several populations of this species on Doi Sutep where I have been able to collect capsules and seeds (Maxwell 91–109, 4 February 1991) at 1300 m. The following description is based on this collection:

Capsules oblong, compressed, rounded and apiculated at the tip, attenuate at the base, smooth, puberulous in the upper half, lower part glabrous, light brown, 9 × 3.5 mm; splitting into 2 spreading, equal pieces. Retinaculæ in the lower half of each valve, inflexed and prominently hooked, 1.5–2 mm long. Seeds 2–4 per capsule, suborbicular, flat, adpressed grey sericeous, thickened at the base (hilum), 2–2.5 × c. 2 mm.

This species is readily recognized by its glandular pubescent indumentum; solitary, strobilate inflorescences/infructescences; ovate bracts, sericeous calyx with 5 nearly equal linear lobes which are united in the lower 1/4; mostly lilac corollas c. 3 cm long, and 4 didymous, fertile stamens.

Strobilanthes viscidus Imlay, from what I have seen, prefers shaded, moist areas in primary evergreen forest and is especially common along small streams. It grows in dense colonies as a spreading, decumbent herb with branches up to 1.5 m long which root at the lower nodes. Stems green to dark green and often with a slightly maroonish hue in places. Bracts light green, or green in the upper half and sometimes with a dull reddish hue in the lower part. Calyx whitish to light green, the tips of the lobes often with a green midnerve. Corolla tube whitish at the narrow base, upper part and both sides of the lobes lilac to light blue, the lobes sometimes with whitish reticulate venation. Anthers cream to white; filaments, stigma, style white. Blades dark green and often with pale light greenish mottling medially above, uniformly light greenish underneath.

IMLAY (1939) notes that this species is closely related to *S. lilacinus* Cl. ex Hoss. which has smaller, rougher leaf blades; larger, oblong bracts; and larger corollas. Since I have not seen authentic material of this species I cannot comment on this relationship with *S. viscidus*. If, however these are the only features distinguishing the two species then *S. viscidus* should be considered a synonym of *S. lilacinus*.

LABIATAE

14. *Orthosiphon marmoritis* Dunn and *O. tagawae* Murata

I have collected what I consider to be *O. tagawae* Mur. * from the eastern lowlands of Doi Chiang Dao on limestone bedrock (Maxwell 89–998, 550 m)—the type locality. There is, however, very close similarity between this species and what is most probably *O. marmoritis* Dunn, which I have gathered on the southern part of Doi Sutep–Pui National Park (Maxwell 90–890, 950 m). MURATA (1970, 1971) gives a complete description of his species which differs from DOAN's (1936) description of *O. marmoritis* Dunn, which was first described in 1915. The basic differences are the more densely pubescent and glandular–capitate indumentum on the outside of the calyx of *O. marmoritis*, which also has a pubescent inner surface on the upper lip. The vegetative features, corolla, and seeds of the two species appear to be the same.

MURATA (1970, 1971) further notes that *O. tagawae* is related to *O. veltarii* Doan from Annam, Vietnam which, apparently, has different bracts. It seems that the affinities of *O. tagawae* are perhaps closest to *O. marmoritis*, that is if the two species are actually different. If they are the same then *O. marmoritis* would have nomenclatural priority and also be a new record for the flora of Thailand.

Orthosiphon marmoritis is known from Tonkin in Vietnam, several places in Laos, and southern China. The two paratypes of *O. tagawae* are from Phu Mieng (mountain), Pitsanulok Province.

It is, therefore, recommended that modern botanists be more thorough in their designation of new species, especially those who have not done or cannot do monographic or revisional work on the genera to which they describe new species for.

STEMONACEAE

15. *Stemona burkillii* Prain emend. Maxw.

Stemona burkillii Prain, noted by CRAIB (1913) to have been collected twice in August 1911 (JACOBS, 1962) by Kerr on Doi Sutep at 420 m elevation in “evergreen jungle” (Kerr 1403) and at 570 m (Kerr 1403a) in “mixed jungle”, was described incompletely by Prain in 1904 from upper Burma material. The following notes are based on a fruiting collection with some staminate flowers from Doi Sutep–Pui National Park (Maxwell 87–671) and a staminate collection from Mae Soi Valley, Jawm Tong District, Chiang Mai Province (Maxwell 90–505).

Erect and later spreading to climbing, glabrous vine. Tubers numerous, fusiform, brown outside, white inside, up to c. 12 cm x 10 mm. Blades ovate, acuminate at the tip, cordate at the base, prominently 11–13–nerved from the base, nerves prominently raised underneath; glabrous, 5–11 cm long. Inflorescence axes glabrous, main axes dull green, pedicels maroonish to cream. Tepals glabrous, pale light greenish with maroon in places; anthers 4, pale light greenish; connectives 3-winged, maroon; androphore c. 1 mm long.

* as all botanical names ending in “a” are considered as being feminine in Latin, the correct spelling of this species is *tagawae* and not “tagawai” as originally published.

Infructescence axes green. Capsules elliptic-fusiform, tip with a c. 5 mm long rostrum; base broadly stalked, c. 7 mm long; total size c. 25x10 mm; glabrous, smooth, green. Seeds ellipsoid, striate, glabrous, 10 x 3 mm. Aril irregularly lobulate, covering the lower 2 mm of the seed.

Both of my collections of this species were made in mostly shaded (seasonally so), fire-prone, deciduous dipterocarp-oak forests, 425–450 m; flowering in May and producing fruits and seeds in July. This species was named in honour of I. H. Burkill (1870–1965), British botanist at Kew and later India, and retiring to England after serving as Director of the Singapore Botanic Gardens (1912–1925).

16. *Stemona kerrii* Craib emend. Maxw.

This species, originally described from material collected by Kerr (Kerr 707 in September 1911) on Doi Sutep was nearly completely described by CRAIB in 1912, is similar in many respects to *S. burkillii*, *Stemona kerrii* however, can be immediately distinguished by having pubescent stems, leaves, inflorescence axes, and tepals. The tepals vary from being maroonish-pinkish on both sides to violet in the lower half and light greenish in the upper part, to light greenish in the lower half to light green in the upper half. I have made 3 collections of this species (Maxwell 88–1287 and 90–900, both from Doi Sutep–Pui National Park (750 m and 900 m elevation, respectively) and 90–707 from the southern lowlands of Doi Saget (525 m)) and now have ample flowering and fruiting material which has enabled me to amplify the description of this species and also compare it with *S. burkillii*. This information is presented here.

Capsules subglobose, compressed, apiculate at the tip, sessile, glabrous, green, 12–13 x 11–12 mm. Seeds subglobose, striate, glabrous, 4–5 mm diameter. Aril consisting of an initially white, lobulate mass covering the base of the seed. While the habitats of the two species are similar, *S. kerrii* is less robust, always twines or sprawls, flowers from late May to late August and fruits from late August to early November.

This species was named in honour of Dr. A.F.G. Kerr (1877–1942), Irish medical doctor-botanist, who was in Thailand from 1902–1932, collected plant specimens extensively throughout the Kingdom, and founded the Department of Agriculture Herbarium in Bangkok (BK) in 1920.

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